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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,231	KAKE ET AL.	
	Examiner	Art Unit	
	Said Broome	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,17,22 and 24-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14,17,22,24-28 and 31-41* is/are rejected.

7)☒ Claim(s) *13,29 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed 8/20/2007.

2. Claims 1, 4 and 40 have been amended by the applicant.

3. Claims 2, 3, 8, 9, 12-15, 17, 18 and 20 have been cancelled.

4. Claims 1, 4-6, 10, 11 and 19 are original.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 40 and 41 are rejected under 35 U.S.C. 101 because the claims contain a program product, which is non-statutory subject matter. In order to be considered statutory subject matter, a program must be recited as "a computer-readable medium encoded with a computer program" so that it provides a tangible structure that enables the program's functionality to be realized. Similarly, computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the

computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 17, 40 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 and 40 recite "outputting the images appearing on the plane as new moving pictures" and claim 17 recites "forming new moving pictures by sequentially outputting frames formed in said synthesizing", however, it is unclear from the previous limitation recited in lines 6-7 of claim 1: "projecting an image that appears on the cut surface onto a plane", and from the applicant's Specification that discloses outputting a single synthesized frame formed from sequential frames that vary along a time axis (pg. 13 lines 15-26 – pg. 14 lines 1-5 and on pg. 15 lines 19-26 – pg. 16 lines 1-2), how several images are output from the plane, when only one image is previously projected onto the plane.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9, 14, 17, 22, 24-28, 31-36, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki (JP 09-035040).

Regarding claims 1 and 40, Seki teaches regarding original moving pictures as two-dimensional images that vary along time axis, and when the moving pictures are expressed, in a virtual manner, as a box space formed by the two-dimensional images and the time axis, cutting the box space by a surface that contains a plurality of points each of which differs from the other in time value (paragraph 0011 lines 5-9: "*...there is a time axis (T-axis) perpendicular to both X-axis and Y-axis, by setting the images along this axis, it is possible to construct the three-dimensional image shown in Figure 3, that is, time-space image I(x, y; t). In step SP2, said time-space image I(x, y; t) is cut by a plane parallel to the time axis, and the image appearing on the cut plane is taken as cross-sectional image...*", Figure 3). Seki also teaches projecting an image (*C*) that appears on the cut surface (*I*) onto a plane (*L*) perpendicular to the time axis (paragraph 0011 lines 5-9: "*...time-space image I(x, y; t) is cut by a plane parallel to the time axis...the image appearing on the cut plane is taken as cross-sectional image C...*" and paragraph 0012 lines 1-11: "*...cross-sectional image C...is extracted...and a new image is formed. This is called trace cross-sectional image L...*", Figure 5). Seki teaches outputting an image appearing on the plane as a new moving picture, by varying the cut surface in time (Figure 5), where several portions of the image frames gathered from their respective instances in time generate a new image of movement (paragraph 0012 lines 1-2 and 8-11: "*...trace cross-sectional image L(s, θ; t) is an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object. This plane completely contains the information pertaining to the movement of the object...*"). Though Seki does not specifically teach outputting

the images appearing on the plane as new moving pictures, it would have been obvious to one of ordinary skill in the art at the time of invention to enable the output of several synthesized images because it would enable a user to animate the movement of several objects in one or more sequences that each correspond to movement of an object (paragraph 0015 lines 1-5: "*When there are plural moving objects in the cross-sectional images, plural groups of the cross-sectional images are prepared corresponding to the respective objects, to get the trace cross-sectional image for each object.*"), whereby a special effect may then be visualized showing the movement of several objects present in the sequence of images. Seki also teaches an image generating method (Figure 1), as recited in the preamble of claim 1. Regarding the preamble of claim 40, though Seki does not explicitly teach a program product embodied on a computer readable medium, it would have been obvious to one of ordinary skill in the art that the image processing used to generated the three-dimensional space (paragraph 0011 lines 1-2: "*...the consecutive images that are input to an image processor.*", Figure 4), is performed by execution of a software program, as recited in the preamble of claim 40.

Regarding claim 2, Seki teaches varying the cut surface in time is realized by moving the surface along the time axis (paragraph 0011 lines 7-9: "*...said time-space image I(x, y; t) is cut by a plane parallel to the time axis...*" and in paragraph 0012 lines 1-2 and 8-11: "*...an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object.*"), where the cut surface plane is parallel to the time axis, and movement along the cut surface would therefore enable movement along the time axis.

Regarding claim 3, Seki teaches that the surface is defined by a function of coordinates of points contained in the two-dimensional images (paragraph 0011 lines 5-7: "*...there is a time*

axis (T-axis) perpendicular to both X-axis and Y-axis, by setting the images along this axis, it is possible to construct the three-dimensional image shown in Figure 3, that is, time-space image I(x, y; t).").

Regarding claim 4, Though Seki does not explicitly teach an image memory and image conversion unit, it would have been obvious to one of ordinary skill in the art that a memory is utilized to collect image data as images are acquired over a time period using the image pickpup means (paragraph 0011 lines 1-2: "*As shown in Figure 1, for example, a camcorder is used to take the consecutive images that are input to an image processor.*"), which is then sent to an image processor that performs the tasks of the image conversion unit and regards the moving pictures as two-dimensional images that vary along a time axis (Figure 4). Seki teaches original moving pictures stored in an image memory, such as by an image pickup device, as two-dimensional images that vary along time axis and, when the moving pictures are expressed, in a virtual manner, as a box space formed by the two-dimensional images and the time axis, cuts the box space by a surface that contains a plurality of points each of which differs from the other in time value, and which projects an image that appears on the cut surface onto a plane perpendicular to the time axis (paragraph 0011 lines 5-9: "*...suppose there is a time axis (T-axis) perpendicular to both X-axis and Y-axis, by setting the images along this axis, it is possible to construct the three-dimensional image shown in Figure 3, that is, time-space image I(x, y; t). In step SP2, said time-space image I(x, y; t) is cut by a plane parallel to the time axis, and the image appearing on the cut plane is taken as cross-sectional image...*"). Though Seki does not explicitly teach an image data output, it would have been obvious to one of ordinary skill in the art at the time of invention that a display unit or device was used to produce the output image

(Figure 4). Seki teaches a new moving-picture frame the images appearing on the plane obtained by varying the cut surface in time in said image conversion unit (paragraph 0006 lines 6-9: "*...all of the consecutive images over a prescribed time are set side-by-side in time to form a three-dimensional time-space image; the time-space image formed in the aforementioned operation is cut by plural planes perpendicular to the original consecutive images*..."). Though Seki does not explicitly each an image generating apparatus, it would have been obvious to one of ordinary skill in the art that the image processor (paragraph 0011 lines 1-2), that generates the image (Figure 4) is comprised in an image apparatus, as recited in the preamble of claim 4.

Regarding claim 5, Seki teaches an image conversion unit or image processor, that realizes varying the cut surface in time by moving the surface along the time axis (paragraph 0012 lines 8-11: "*...an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object. This plane completely contains the information pertaining to the movement of the object, that is, movement velocity and movement direction.*").

Regarding claim 6, Seki illustrates the surface defined in a manner such that the surface has continuous or discrete width the direction of the time axis (Figure 4). Seki teaches the image conversion, or processor, synthesizes images covered within the width (paragraph 0012 lines 1-2 and 8-11: "*On said cross-sectional image C(d, t; θ), a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace...this trace cross-sectional image L(s, θ; t) is an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object. This plane completely contains the information pertaining to the movement of the object*..."), where the trace image contains a synthesized image containing information from all the images along the time axis.

Regarding claim 7, Seki teaches an image conversion unit, or image processor, cuts the box space by a surface defined by a function of coordinates of an image region constituting the two-dimensional image (paragraph 0011 lines 5-7: "*...there is a time axis (T-axis) perpendicular to both X-axis and Y-axis, by setting the images along this axis, it is possible to construct the three-dimensional image shown in Figure 3, that is, time-space image I(x, y; t).*").

Regarding claim 8, Seki teaches the surface is defined by a function which does not depend on a horizontal coordinate of the two-dimensional image (paragraph 0011 lines 5-9: "*...suppose there is a time axis (T-axis) perpendicular to both X-axis and Y-axis, by setting the images along this axis, it is possible to construct the three-dimensional image shown in Figure 3, that is, time-space image I(x, y; t). In step SP2, said time-space image I(x, y; t) is cut by a plane parallel to the time axis...*"), where the cut surface is defined along the time axis, therefore the surface is defined along the t coordinate.

Regarding claim 9, Seki teaches the image conversion unit, or image processor, cuts the box space by a surface which is defined by a function of attribute values for an image region constituting the two-dimensional image (paragraph 0012 lines 1-2 and 6-11: "*...a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace...This is called trace cross-sectional image L(s, θ; t), and it is found that this image becomes a place containing the velocity vector of the moving object...This plane completely contains the information pertaining to the movement of the object...*"), where it the surface is defined by an attribute that represents the velocity of the movement of the object along the time axis.

Regarding claim 14, Seki teaches that a time value that defines the surface includes at least one of a past or a future with the present time being a center thereof (paragraph 0006 lines 6-8: "*...all of the consecutive images over a prescribed time are set side-by-side in time to form a three-dimensional time-space image; the time-space image formed in the aforementioned operation is cut by plural planes perpendicular to the original consecutive images...*"), where the surface is parallel to the time axis, therefore at any present time value the values analyzed from the left and to the right of that value are the past and future time values.

Regarding claim 17, Seki teaches reading out, for each in-picture position of an image contained in a target frame in original moving pictures, data that correspond to the in-picture position, from at least one of a plurality of frames contained in the original moving pictures (paragraph 0012 lines 1-2 and 6-11: "*...a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace...This is called trace cross-sectional image L(s, θ; t), and it is found that this image becomes a place containing the velocity vector of the moving object...This plane completely contains the information pertaining to the movement of the object...*"), where a certain region from all the frames is captured (Figure 4). Seki also teaches synthesizing the read-out data in a ratio according to an attribute value of the image contained in at least one of the plurality of frames (paragraph 0012 lines 1-2 and 8-11: "*On said cross-sectional image C(d, t; θ), a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace...this trace cross-sectional image L(s, θ; t) is an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object. This plane completely contains the information pertaining to the movement of the object...*"), where an attribute value, such as the proportional difference in

the position of the object over time, is tracked and presented in a synthesized image that displays the movement of the object over a time interval (Figure 5). Though Seki does not specifically teach forming new moving images by sequentially outputting frames formed in the synthesizing, it would have been obvious to one of ordinary skill in the art at the time of invention to enable the output of several synthesized images because the output of several synthesized images would enable a user to animate the movement of several objects in a sequence of images through generation of several synthesized images for each group that corresponds to an object in sequence of images (paragraph 0015 lines 1-5: "*When there are plural moving objects in the cross-sectional images, plural groups of the cross-sectional images are prepared corresponding to the respective objects, to get the trace cross-sectional image for each object.*"), whereby a special effect may then be visualized showing the movement of several objects present in the sequence of images. Seki also teaches an image generating method (Figure 1), as recited in the preamble.

Regarding claims 22, 24 and 41, Seki teaches an image pickup device (paragraph 0011 lines 1-2: "*As shown in Figure 1, for example, a camcorder is used to take the consecutive images that are input to an image processor.*"), therefore it would have been obvious to one of ordinary skill in the art that the images are collected in an image memory. Seki also teaches sequentially recording, in sequence, original moving pictures for each frame, where the image conversion unit, or image processor, determines for each in-picture position of an image contained in a target frame (paragraph 0012 lines 1-2 and 8-11: "*On said cross-sectional image $C(d, t; \theta)$, a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace…this trace cross-sectional image $L(s, \theta; t)$ is an image*

obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object. This plane completely contains the information pertaining to the movement of the object…"), wherein for the successive frames, the position of an object in image is tracked (Figure 4). Seki also teaches that the image conversion unit, or image processor, determines a plurality of frames at predetermined time intervals from the frames recorded in the image memory (paragraph 0013 lines 1-2: "*…all of the consecutive images within a prescribed time are obtained beforehand.*"), where fames are captured over a predetermined time interval, therefore the time intervals between the frames is predetermined (Figure 2). Seki also teaches from the plurality of frames, data that corresponds to the in-picture position and synthesizes the data in a ratio according to an attribute value (paragraph 0012 lines 1-2 and 6-11: "*...a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace…This is called trace cross-sectional image L(s, θ; t), and it is found that this image becomes a place containing the velocity vector of the moving object…This plane completely contains the information pertaining to the movement of the object…*"), where a certain region from all the frames is captured, as shown in Figure 4. Seki also teaches synthesizing the read-out data in a ratio according to an attribute value of the image contained in at least one of the plurality of frames (paragraph 0012 lines 1-2 and 8-11: "*On said cross-sectional image C(d, t; θ), a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace…this trace cross-sectional image L(s, θ; t) is an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object. This plane completely contains the information pertaining to the movement of the object…*"), where an attribute value, such as the proportional difference in the position of the

object over time, is tracked and presented in a synthesized image that displays the movement of the object over a time interval (Figure 5). Seki illustrates sequentially outputting the synthesized and reconstructed image data (Figure 5). Though Seki does not explicitly each an image generating apparatus, it would have been obvious to one of ordinary skill in the art that the image processor (paragraph 0011 lines 1-2), that generates the image (Figure 4) is comprised in an image apparatus that captures and displays image output, as recited in the preamble of claims 22 and 24. Though Seki does not explicitly teach a recording medium, it would have been obvious to one of ordinary skill in the art that the device used to capture the images (paragraph 0011 lines 1-2: "*...the consecutive images that are input to an image processor.*", Figure 4), stores a program to execute the image generation (Figure 4), as recited in the preamble of claim 41.

Regarding claim 25, Seki teaches that the target frame or at least one of frames is at least one of a previous frame in time or a subsequent frame in time with respect to a reference frame which should have been naturally outputted by said image data output unit from said image memory (paragraph 0006 lines 6-7: "*...all of the consecutive images over a prescribed time are set side-by-side in time to form a three-dimensional time-space image...*"), where the frames are successively located along a time axis, therefore a particular frame that is presently analyzed would have a frame from the past in reference to a current frame.

Regarding claim 26, Seki teaches that for each in-picture position of the images contained din the target frame, the image conversion unit or processor adds a predetermined pixel value in accordance with an attribute value thereof (paragraph 0016 lines 3-7: "*...cutting of the initial time-space image is performed in all directions...the cutting plane is made of a helix plane along the movement trace of the object, and this plane completely contains the movement vector of the*

object, and it contains all of the information about the movement trace."), where a predetermined cut is performed on the surface containing a position, or pixel value, within the frames to track the movement of the object in accordance with an attribute value, such as the specified time interval of the frames (paragraph 0011 lines 1-5: "*...a camcorder is used to take the consecutive images...as the images at an instant (11, 12, 13) shown in Figure 2 are represented as I(x, y) with the orthogonal coordinates of X-axis and Y-axis, all of the images obtained are set side-by-side in time sequence.*").

Regarding claims 27 and 28, Seki teaches an attribute or depth value, t, (paragraph 0011 lines 5-7: "*...there is a time axis (T-axis) perpendicular to both X-axis and Y-axis, by setting the images along this axis, it is possible to construct the three-dimensional image shown in Figure 3, that is, time-space image I(x, y; t).*", Figure 3).

Regarding claims 31 and 32, Seki teaches an attribute value or movement vector value that indicates a degree of change of an image area in time (paragraph 0016 lines 3-7: "*...cutting of the initial time-space image is performed in all directions...the cutting plane is made of a helix plane along the movement trace of the object, and this plane completely contains the movement vector of the object, and it contains all of the information about the movement trace.*").

Regarding claims 33 and 34, Seki teaches an attribute value that is a pixel value (paragraph 0012 lines 1-2: "*...a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace...only the portion containing angle θ_d is extracted from each cross-sectional image C(d, t; θ), and a new image is formed.*"), where the position of the pixel with the image frame is tracked over a time interval.

Regarding claims 35 and 36, Though Seki does not explicitly teach an image memory, it would have been obvious to one of ordinary skill in the art that an image pickup device, such as a camera or camcorder (paragraph 0011 lines 1-2: "*...a camcorder is used to take the consecutive images that are input to an image processor.*"), contains an image memory for capturing images.

Claims 10-12 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki in view of Fels et al.(hereinafter "Fels", "*Techniques for Interactive Video Cubism*").

Regarding claims 10 and 37, Seki fails to teach the limitations. Though Fels does not explicitly teach a setting input unit and image conversion unit, it would have been obvious to one of ordinary skill in the art at the time of invention that the input capabilities provided to the user have a corresponding input unit, as well as an image conversion unit to process the images displayed (Figures 1-4). Fels teaches input acquired via a user operation, used to define the surface, where the image conversion unit cuts the box space by the surface defined by a function of the setting value acquired by the setting input unit (section 3.3.1 lines 1-2: "*The cut plane allows the user to move a planar window inside the video cube and examine the corresponding imagery...*"), where the three-dimensional surface is cut by a plane (Figure 3), therefore it is obvious that the processed images displayed (Figures 1-4) were obtained using an image conversion unit. It would have been obvious to one of ordinary skill in the art to combine the teachings of Seki with Fels because this combination would provide the ability to accurately display successive frames of animation or video collectively in a three-dimensional format in which the user may interactive with the data to define a plane by which to cut the surface of the

data to define a representation of the change of the images or frames over a time interval thereby enabling temporal analysis of the data.

Regarding claims 11 and 38, Seki teaches a curve that indicates a relation between coordinates of points contained in the two-dimensional images and time values thereof and a variable of the function is displayed on a screen (paragraph 0012 lines 1-11: "*On said cross-sectional image C(d, t; θ), a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace…the object trace on said cross-sectional image C(d, t; θ) at a certain time is determined…This is called trace cross-sectional image L(s, θ; t), and it is found that this image becomes a place containing the velocity vector of the moving object…this trace cross-sectional image L(s, θ; t) is an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object.*", Figure 5). However, Seki fails to teach a setting input unit and a setting value. Though Fels does not explicitly teach a setting input unit, it would have been obvious to one of ordinary skill in the art at the time of invention that the input capabilities provided to the user have a corresponding input unit, therefore the input (section 3.3.1 lines 1-2) has a corresponding input unit to provide a value that is used to define the cut surface (Figure 4). The motivation to combine the teachings of Seki with Fels is equivalent to the motivation of claim 10.

Regarding claims 12 and 39, Seki teaches that based on coordinates of characteristic points in the two-dimensional images, the image conversion unit, or image processor, cuts the box space by a curve defined by a function of the coordinates of the characteristics points (paragraph 0012 lines 1-11: "*This is called trace cross-sectional image L(s, θ; t), and it is found that this image becomes a place containing the velocity vector of the moving object. That is, this*

trace cross-sectional image L(s, θ; t) is an image obtained by cutting said time-space image I(x, y; t) with a helix plane along the movement direction of the object ", Figure 5). However, Seki fails to teach a setting input unit and a setting value. Though Fels does not explicitly teach a setting input unit, it would have been obvious to one of ordinary skill in the art at the time of invention that the input capabilities provided to the user have a corresponding input unit, therefore the input (section 3.3.1 lines 1-2) has a corresponding input unit to provide a value that is used to define a certain portion of the cut surface (Figure 4). The motivation to combine the teachings of Seki with Fels is equivalent to the motivation of claim 10.

Allowable Subject Matter

Seki and Fels do not teach that the image conversion unit partially changes a rate of the new moving-picture frame to be outputted from said image data output unit in a manner such that, according to attribute values of image regions that constitute the two-dimensional images, the cut surface is varied in time with different speed for each of the image regions, as recited in claim 13, and also do not teach that the attribute value is a value that indicates the order of approximation relative to a desired image pattern, as recited in claims 29 and 30. Therefore claims 13, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 8/20/07 have been fully considered but they are not persuasive.

In regards to the 35 U.S.C. 112 second paragraph rejection, the applicant argues on pg. 9 5th ¶ lines 1-2 – pg. 10 2nd ¶ lines 1-6 of the remarks that the claim language "outputting images and "outputting frames" is definite and is supported in the specification. However, though claims 1-3, 17, 40 and 41 recites outputting several images, the claim language is inconsistent from the previous limitations which refer to only one projected image (i.e. lines 6-7 of claim 1: "*...projecting an image...onto a plane...*" and line 2 of claim 17: "*...reading out, for each in-picture position of an image...*"), therefore claims 1-3, 17, 40 and 41 are indefinite and remain rejected under 35 U.S.C. 112 second paragraph.

The applicant also argues on pg. 9 5th ¶ lines 1-2 – pg. 10 2nd ¶ lines 1-6 of the remarks that claims 1-3, 17, 40 and 41 rejected under 35 U.S.C. 112 second paragraph are supported by the applicant's specification, however, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The 35 U.S.C. 101 rejection of claims 40 and 41 has been maintained, as described above in the office action.

The applicant argues on pg. 11 3rd ¶ lines 6-11 of the remarks that the plane and cut surface of Seki are the same surface, and that Seki therefore does not disclose or suggest projecting the cut surface onto a plane perpendicular to the time axis, as recited in claims 1 and 40. However, Seki teaches a cut surface (*I*) that is placed on a plane (*L*) that is perpendicular to

the time axis (Figure 4), where *I* is projected onto the surface of *L,* and therefore cannot be the same surface.

The applicant also argues on pg. 11 4th ¶ lines 5-6 of the remarks that Seki's trace cross sectional image (*L*) is not a series of images generated one after another output as a new moving picture. However, the applicant's states on pg. 11 4th ¶ lines 1-3 that Seki does acquire positions of an object occurring at multiple points of time that are then represented in a single still image, therefore the positions are acquired within multiple images to produce a single new image. The applicant also argues on pg. 11 4th ¶ lines 7-8 of the remarks that Seki does not teach a cut surface that varies in time. However the cut surface (*I*) of Seki is a time-space image that varies in time (paragraph 0011 lines 5-9: "*...there is a time axis (T-axis) perpendicular to both X-axis and Y-axis, by setting the images along this axis, it is possible to construct the...time-space image I(x, y; t...parallel to the time axis...*").

The applicant also argues on pg. 12 2nd ¶ lines 4-8 of the remarks that modifications to Seki would make Seki's device inoperable for its intended purpose. However, modifications to Seki would not make Seki's device inoperable because it would have been obvious to one of ordinary skill in the art at the time of invention to modify Seki to output several synthesized images to enable a user to animate the movement of several objects in one or more sequences that each correspond to movement of an object (paragraph 0015 lines 1-5: "*When there are plural moving objects in the cross-sectional images, plural groups of the cross-sectional images are prepared corresponding to the respective objects, to get the trace cross-sectional image for each object.*"), whereby a special effect may then be visualized by Seki's device that displays the movement of several objects present in the sequence of images in a useful and operable manner.

The applicant also argues on pg. 12 3rd ¶ lines 2-8 of the remarks that Seki and the applicant's invention are fundamentally different in purpose and operation. However, the applicant's invention is directed toward converting original moving images into new images by referring to original moving image frames of different time values, which is functionally equivalent to generation of the object trace of Seki because the object trace captures values of image frames at different time values to generate a new moving image (paragraph 0012 lines 1-2 and 6-11: "*...a portion of the image of moving object (21) contained in the original consecutive images must appear as the trace...This plane completely contains the information pertaining to the movement of the object...*"), where several new moving images would be generated for several objects that move along the time axis of the box space (paragraph 0015 lines 1-5: "*When there are plural moving objects in the cross-sectional images, plural groups of the cross-sectional images are prepared corresponding to the respective objects, to get the trace...for each object.*"), therefore Seki and the applicant's invention are fundamentally the same in purpose and operation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Said Broome/
Art Unit 2628
10/10/07

ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER